

ceæ, and other plants that are generally recognised to be suitable for the purpose. The chief essentials to success are carefully prepared soil, good lighting, judicious watering, and, in many cases, an unheated room for winter storage; the good results observable in cottage rooms are quite in accord with the last condition.

The author first instructs in general processes, such as watering, potting, sowing, and the like, and then gives special directions for each plant or group of similar plants, arranging them according to habit. The instructions are full, clear and explanatory, so that anyone with an ambition for cultivating such plants as those named above without a greenhouse will be well advised to consult the book and work upon the lines indicated.

Flashes from the Orient, or a Thousand and One Mornings with Poesy. In four books, Spring, Summer, Autumn, and Winter. Book third, Autumn. By John Hazelhurst. Pp. x+280. (London and Aylesbury: Hazell, Watson and Viney, Ltd., 1910.) Price 1s. 6d. net.

READERS familiar with Mr. Hazelhurst's sonnets on summer will turn with interest to his verses dealing with subjects suggested by the phenomena and events connected with the fall of the year. His subjects range from "Enthusiasm" to "Misery," and from "The Sewing Machine" to "The Dome of Heaven"; and he finds music in them all.

LETTERS TO THE EDITOR.

[The Editor does not hold himself responsible for opinions expressed by his correspondents. Neither can he undertake to return, or to correspond with the writers of, rejected manuscripts intended for this or any other part of NATURE. No notice is taken of anonymous communications.]

The Inheritance of Acquired Characters.

I AM rather disposed to think that Prof. Judd is right in saying that this "and similar problems were constantly present to Darwin's ever-open mind." They seem to me, indeed, to underlie the whole of the discussions in the second volume of the "Variation of Plants and Animals under Domestication"; and I believe it is generally considered that Darwin put forward his theory of "pangenesis" to account for the cases where some amount of direct influence of the environment appeared to be inherited.

The passage which Prof. Meldola quotes from the sixth edition of the "Origin" occurs word for word in the first (p. 44). It is interesting to note that in the interval between the two Darwin never saw any ground for altering the statement, though he modified others on the same page. I can have little doubt that, at any rate so far as plants are concerned, "the source of his . . . authority for" it is to be found in Alph. de Candolle's "great and admirable work," as Darwin calls it ("Origin," sixth edition, p. 89), "Géographie Botanique raisonnée." That appeared in 1855, and there is abundant internal evidence to show that it received from Darwin the most attentive study.

Great and admirable it certainly is, but it is impossible not to feel in reading it that, perhaps in the whole history of science, there has never been a more striking case of a *coup manqué*. For de Candolle had the same problem before him as Darwin, and he attacks it by the same method of patiently accumulating and sifting facts. He grasps the action of variation, heredity, and of cultural selection, but he fails to grasp the idea that nature might operate on the same lines as the cultivator, and natural selection constantly eludes him as it did Herbert Spencer.

It is true that de Candolle does not absolutely reject the effect of the environment, but he was led to the conclusion that it would act, if at all, with such extreme slowness as to be practically ineffective. It is difficult to give a brief quotation, but the following may suffice:—

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"Toutes les fois qu'il a été question de l'influence du climat sur les végétaux, je me suis efforcé de combattre l'opinion d'une *acclimatation*, c'est à dire d'un changement dans la nature des espèces qui les rende, après quelques générations, plus aptes à résister aux influences défavorables d'un climat. J'ai applaudi au mot spirituel de du Petit-Thouars: 'L'acclimatation, cette douce chimère de la culture'" (pp. 1087-88).

It must I think be evident that, though he does not actually quote it, Darwin, from his use of the word "chimæra" ("Variation," ii., 313), has this passage in his mind. But he goes on to show that the problem is at once solved by natural selection. He states this, however, with his usual caution:—"Though habit does something towards acclimatisation, yet . . . the spontaneous appearance of constitutionally different individuals is a far more effective agent" (*loc. cit.*, 314), and though he appears, in the main, to have relied on de Candolle, he took some trouble to investigate the question for himself:—"Can we feel sure that our kidney-beans are not somewhat hardier? I have not been able, by searching old horticultural works, to answer this question satisfactorily."

I think, then, that it was upon de Candolle's conclusions, supported by his own investigations, that Darwin based the pregnant sentence which Prof. Meldola has quoted. And how pregnant every word in the book is can be little appreciated except by those who have more than a bowing acquaintance with its pages.

I cannot but agree with Prof. Judd that modern evolutionary theory had its root in Lyell. Nor do I think that in the cold light of history it will seem to "be going too far . . . to assert that if the Principles of Geology had not been written, we should never have had the Origin of Species." If the possession of Darwin is the glory of Cambridge, it is pleasant for a member of the sister university—though it says little about it—to know that it is secure in that of Lyell.

W. T. THISELTON-DYER.

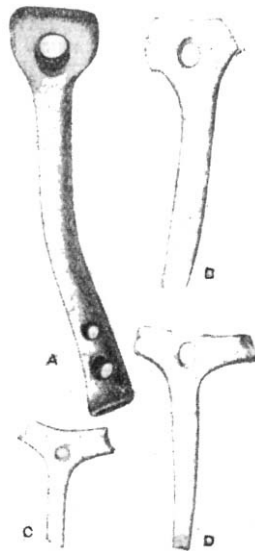
Witcombe.

Palæolithic Shaft-straighteners.

IN a previous communication to NATURE (vol. lxxiv., p. 372, 1906) I directed attention to some Eskimos' arrow-straighteners which present a closer resemblance to the famous *bâtons de Commandement* of the Magdalenian age than any which had been previously described.

Last summer, when my friend Mr. Marrett and I were returning from Toulouse, where we had enjoyed the hospitality of the French Association, we stayed at Perigueux on our way to some of the painted caves of Les Eyzies. We were fortunate in our choice of an hotel, for our host, M. L. Didon, proved to be an enthusiastic investigator of the caves in the neighbourhood. His collection of Aurignacian bone implements, obtained by him from the Aurignacian station of Castelmeule, is the finest I have seen, and, I should think, unrivalled anywhere. M. Didon informs me that he has completed its description, which will be published in the course of the winter.

The number and variety of the bone implements obtained from this single locality, dating from a period so long anterior to the Magdalenian, greatly impressed us, but the objects which most aroused my interest were three shaft-straighteners (see Fig.). These, while presenting a general resemblance to the Magdalenian *bâtons*, make a still nearer approach to those of the Eskimos previously re-



ferred to. M. Didon was kind enough to allow me to make drawings of them for publication, and in the accompanying figure at B, C, D they are shown side by side with the Eskimos' shaft-straightener described by Dr. Boaz (Franz Boaz, Bull. Am. Mus. Nat. Hist., xv., p. 84, Fig. 117, 1901). They are all reduced to the same scale. The larger holes are no doubt intended to be used upon the shafts of javelins or lances; the smaller ones are of an appropriate size for arrows. The largest hole in A is 24 mm. in diameter, in B 21 mm.; the small hole in C is only 10 mm.

The most important feature in these implements is the obliquity of the holes; their axes are not perpendicular, but strongly inclined to the face of the implement. Singularly enough, in the more artistic *bâton de Commandement* of the Magdalenians this refinement is absent, and the hole goes straight through.

The ridges produced by the drill in boring these Aurignacian straighteners are still preserved, except on two opposite sides of the hole, where they have been worn away by use.

Whatever may be the ultimate verdict upon the Magdalenian "*bâtons*," there can be no question as to the nature of their Aurignacian homologues, since in no essential feature do these differ from the shaft-straighteners of the Baffin's Bay Eskimos described by Dr. Boas.

A similar straightener has been described and figured by Maška from the Kulna cave near Sloup, in Moravia.

Oxford, January 7.

W. J. SOLLAS.

The Turkestan Earthquake of January 3-4.

SOME details of the seismographic and magnetographic records of the great earthquake of January 3 may be of interest to readers of NATURE. The three oscillation phases as seen on the seismogram are comparatively large. They commenced suddenly, each with a westward displacement, at 11h. 37m., 11h. 44.5m., and 11h. 48.5m. p.m. respectively. The large waves (third phase) then continued for 23.5 minutes, producing rapid oscillations of the boom at an average of 35 mm. double amplitude, indicating 14.4" arc swing of the pillar. But these suffered an early interruption of 5 minutes by an apparent interference of two systems, reducing the amplitude to a minimum at 11h. 54m. p.m. The recovery was immediate and sharp, as if by the arrival of a second train of large waves, resembling closely the effect of the initial shock of the first large waves.

The maximum amplitude may have occurred between midnight and 8 minutes after, during which interval the registering light-spot travelled frequently beyond the limits of the camera aperture. But there is a probability that the maximum occurred precisely at midnight; and this is supplied by the mechanical effects upon the three magnetographs, each of which shows a clear maximum oscillation at midnight.

As on former occasions, the bifilar suspension of the horizontal force magnet was much more sensitive to the shakes than the unifilar declination or the vertical force balance. The bifilar responded to the first preliminary earth-tremors, and did not come to final rest for half an hour. Its record shows two groups of lines. The first contains three clear oscillations, marking the beginning, middle, and end of the first tremors. The second group contains five oscillations, including the maximum; and there is a smaller oscillation near the middle of the intervening lull at 11h. 50m. p.m., the commencement of the large waves. The other two curves show only the last group, containing the maximum.

We have therefore on the horizontal force curve oscillations responding to the three initial shocks of the first and second earth tremors, and of the large waves. To these may be added the maximum oscillation at midnight, as probably responding to a sudden increment of the large waves.

The bifilar suspension, being a torsion balance against the horizontal force, is naturally more sensitive to sudden vertical movements of its pillar than to horizontal or slower vertical displacements.

WALTER SIDGREAVES, S.J.

Stonyhurst College Observatory, January 11.

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As given by the Milne-principle seismograph here, the commencement of the phases of this quake were as follows:—Preliminary: both N. and W. boom, 11.34 p.m. Second: N. boom, 11.40; W. boom, 11.39.5 Principal: N. boom, 11.52.9; W. boom, 11.52.8.

The actual maxima were:—N. boom, 110.8 mm. at 11.58.7; W. boom, 131.0 mm. at 11.55, and 127.6 mm. at 11.58.3.

There were 30 after-shocks on the N. boom, lasting until 5.11 a.m., and 37 on the W. boom, lasting until 5.26.

F. EDWARD NORRIS.

Woodbridge Hill, Guildford, January 17.

The Markings of Mars.

MAY I mention on behalf of my relative, Mr. J. H. Worthington, to whose previous letter M. Antoniadi has replied in NATURE of January 5, that he is at present away on an eclipse expedition to the Pacific Ocean, and out of reach of correspondence?

A. M. WORTHINGTON.

1 The Paragon, Blackheath, S.E., January 17.

Fireball of January 9.

THE Rev. W. F. A. Ellison, of Fethard Rectory, near Waterford, saw a splendid meteor on January 9 at 7h. 35m. G.M.T. The apparent path was near Aries and Cetus from $25^{\circ}+3^{\circ}$ to $27^{\circ}-13^{\circ}$. Motion very slow, the whole duration being at least seven seconds.

The flight was directed from the radiant of the January Quadrantids, and it is possible that the fireball formed one of the larger fragments of that stream. But this is uncertain, and another observation is desirable to discover the true radiant. From Cornwall the meteor must have been a very fine object, and must have attracted the notice of many persons, though I have seen no published description of it.

W. F. DENNING.

THE ADMISSION OF WOMEN TO THE PARIS ACADEMY OF SCIENCES.

IN our last week's issue we gave an account of the action taken at the quarterly plenary meeting of the five academies of the Institute of France on January 5, in relation to the proposal of the Academy of Sciences to elect Madame Curie to the vacancy on the physical section of that body caused by the death of Monsieur Gernez.

A Paris correspondent has sent us a copy of the *Temps* containing a remarkable letter from M. Darboux, the permanent secretary of the Academy of Sciences, giving the reasons and motives of the academy for their decision. We have not space for the whole letter, which is admirable from start to finish, but M. Darboux insists upon a point missed in all the preceding polemic, which should have an important bearing upon the general question raised by it.

After referring to the magnificent work done by Madame Curie, and the honours which have been showered upon her, he points out that her proposed election as a working member of a busy academy is a matter of great importance, not so much to Madame Curie as to the academy itself.

"Tant de titres, tant de résultats mémorables obtenus dans un si court espace de temps donneraient certes à Mme. Curie le droit de réclamer comme une récompense méritée le siège occupé naguère par son mari. Mais un siège à notre Académie est plus et mieux qu'une récompense. S'il donne une satisfaction légitime et quelques droits, il impose aussi des